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THE INFLUENCE OF CHRONIC CONTROL CONCERNS ON COUNTERFACTUAL THOUGHT

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The present study investigated relationships between counterfactual thinking, control motivation, and depression. Mildly depressed and nondepressed participants described negative life events that might happen again (repeatable event condition) or probably will not happen again (nonrepeatable event condition) and then made upward counterfactuals about these events. Compared to nondepressed participants, depressed participants made more counterfactuals about controllable than uncontrollable aspects of the events they described, and this effect was mediated by general control loss perceptions in the repeatable event condition. Making more counterfactuals about controllable than uncontrollable aspects also enhanced retrospective control perceptions, but only in the repeatable event condition. Functional and dysfunctional implications of making counterfactuals about controllable features of events are discussed.

"If only I had locked the door before I left, my car wouldn't have been stolen." "If only I had taken a different exit, I wouldn't be caught in this traffic jam." These statements are examples of counterfactual thinking, a phenomenon that has generated a great deal of research interest in recent years (see Miller, Turnbull, & McFarland, 1990; Roesse & Olson, 1995a, for reviews). Counterfactuals are often conditional statements, containing both an antecedent (e.g., taking a different exit) and a consequent (e.g., not being in a traffic jam). Once in mind, these alternative versions of past events have been shown to influence a wide range of

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social judgments, including attributions of causality (Wells & Gavanski, 1989), victim compensation (Miller & McFarland, 1986), suspicion (Miller, Turnbull, & McFarland, 1989), and regret (Gilovich & Medvec, 1995; Landman, 1987).

Researchers recently have begun to explore the affective and motivational implications of counterfactual thought (e.g., Johnson & Sherman, 1990; Markman, Gavanski, Sherman, & McMullen, 1993; McMullen, Markman, & Gavanski, 1995; Sherman & McConnell, 1995; Roese, 1994; Roese & Olson, 1995b; Taylor & Pham, 1996; Taylor & Schneider, 1989). For instance, Markman et al. (1993) and Roese (1994) have drawn a distinction between *upward* ("it could have been better") counterfactuals and *downward* ("it could have been worse") counterfactuals. They also have obtained empirical evidence suggesting that upward counterfactuals can prepare one for the future, whereas downward counterfactuals can engender positive affect.

Recent work also has begun to explore the relationship between counterfactual thinking and perceived control, recognizing that the need for control, the need to render one's social world understandable, predictable, and controllable, has long been considered to be a major motivation underlying human behavior and psychological functioning (e.g., deCharms, 1968; Heider, 1958; Kelley, 1967; White, 1959). Indeed, control motivation has been implicated in a wide assortment of psychological and behavioral outcomes, including causal ascriptions (Anderson & Deuser, 1993; Brickman, Rabinowitz, Karuza, Coates, Cohn, & Kidder, 1982; Weiner, 1986), confidence in judgment (Langer, 1975), coping (Lazarus & Folkman, 1984; Taylor, Lichtman, & Wood, 1984; Thompson, 1993), job-seeking behavior (Feather & O'Brien, 1987), and immunological response to stressful situations (Widenfield, O'Leary, Bandura, Brown, Levine, & Raska, 1990).

The results of several recent studies have provided some support for an empirical relationship between control motivation and counterfactual thought. Giroto, Legrenzi, and Rizzo (1991) presented participants with a scenario in which the protagonist's drive home is interrupted by several events. The counterfactuals subjects generated tended to focus on controllable rather than uncontrollable aspects of the scenario (see also N'Gbala & Branscombe, 1995, for a replication of this effect). Similarly, Markman, Gavanski, Sherman, and McMullen (1995) found that participants were more likely to make counterfactuals about controllable than uncontrollable antecedents of their performance outcomes. According to Markman et al. (1995), people may focus attention on the controllable aspects of events in an effort to instill feelings of control over both past and future outcomes.

Recent work by Roese and Olson (1995c) also has found that control-

lability can influence the *direction* of counterfactual comparison. Specifically, participants in their study made more upward counterfactuals about a story character placed in a controllable situation, but made more downward counterfactuals about the same story character placed in an uncontrollable situation. These authors reasoned that upward counterfactuals, because they serve a preparative function, are more relevant in controllable circumstances where the opportunity for future improvement is a possibility.

The results of these studies, then, have established the perceived controllability of situational features as one determinant of the types of counterfactuals people generate. The present work focuses on how chronic and generalized perceptions of control loss influence the nature of counterfactual thought. Because chronic control concerns have been associated with mild and moderate levels of depressive symptomatology (e.g., Garber, Miller, & Seaman, 1979; Warren & McEachren, 1983; Weary, Elbin, & Hill, 1987; Weisz, Weiss, Wasserman, & Rintoul, 1987), we examine the counterfactual thinking of individuals suffering from subclinical levels of depression.

CONTROL BELIEFS, DEPRESSION, AND SOCIAL INFERENCES

Over the past fifteen years or so, researchers have become increasingly interested in exploring the impact of depression on various social cognitive processes (for a recent review, see Weary & Edwards, 1994). Much of this work has consisted of demonstrations of the existence (albeit not necessarily the causal status) of the structural elements theorized (e.g., Abramson, Metalsky, & Alloy, 1989; Abramson, Seligman, & Teasdale, 1978; Alloy, Kelly, Mineka, & Clements, 1990; Beck, 1974) to be critical antecedents of depression (e.g., depressogenic schemata and attributional control styles) and the moderating influence of these elements on subsequent emotional, motivational, and cognitive processes. Of particular importance for the present work is research that has examined the inferential effects associated with depressed and nondepressed perceivers' generalized control expectations on the content of their social inferences.

One line of work addressing such issues concerns depressed and nondepressed perceivers' causal attributions for their behavioral outcomes. Although past research has found relatively little consistency in the attributions of nondepressed and depressed individuals for their positive outcomes, numerous studies have demonstrated consistent differences in their attributions for their negative outcomes. Nondepressed individuals tend to ascribe their negative outcomes to internal, unstable, and controllable factors (e.g., modifiable behavioral strate-

gies, mood states). Depressed individuals, on the other hand, tend to implicate internal, stable, and uncontrollable factors (e.g., character, dispositions, native abilities) as causes of their negative outcomes (for reviews see Sweeney, Anderson, & Bailey, 1986; Weary & Edwards, 1994). These attributional patterns of nondepressed and depressed perceivers correspond to the conceptualizations of behavioral and characterological self-blame attributions first identified by Janoff-Bulman (1979) and recently refined by Anderson, Miller, Riger, Dill, and Sedikides (1994). Moreover, they are thought to result from the unrealistically positive and depressogenic inferential styles of nondepressed and depressed perceivers, respectively.

A second body of relevant research has developed in parallel to the psychopathology theory and research discussed above. This work, based more on control-deprivation models of social information processing (Pittman, 1993; Pittman & D'Agostino, 1985), stresses the potential motivational functions of mild and moderate expectations and perceptions of uncontrollability in situations where perceivers' secondary control concerns (Heckhausen & Schulz, 1995) are likely to be activated.

A major example of this approach to depression and social perception is the work of Weary and her colleagues (for reviews see Weary & Gannon, 1996; Weary, Marsh, Gleicher, & Edwards, 1993), who have developed a model of the social-cognitive consequences of the chronic control concerns known to characterize depressed perceivers. Briefly, their model posits that at moderate levels control loss beliefs engender feelings of uncertainty about one's ability to understand causal relations in the social world; often these feelings are thought to motivate depressed individuals to selectively attend to information that might reasonably render their social environments more understandable, predictable, and controllable.

A number of studies have provided support for this model. Of most relevance for the present work are studies that have demonstrated an enhanced sensitivity to control-relevant features of the social environment. In this regard, research has indicated that, compared to nondepressives, individuals experiencing moderate levels of depressive symptomatology are more interested in and use more information about the potential causes of their outcomes (Marsh & Weary, 1989), and are more responsive to social comparison feedback (Weary et al., 1987), negative or unexpected events (Gleicher & Weary, 1991; Weary, Jordan, & Hill, 1985), and particularly diagnostic social information (Edwards & Weary, 1993; Hildebrand-Saints & Weary, 1989). Moreover, at least two studies have provided some evidence that depressives' greater sensitivity to such types of social information result from

their generalized expectations of control loss (Edwards & Weary, 1993; Yost & Weary, 1996).

In the present study, we set out to document the underlying role of depressives' chronic control beliefs on their counterfactual thought processes. In particular, we examine the influence of depression-related control beliefs on the mutation of controllable relative to uncontrollable features of a past event. We also examine how such thought might alter a sense of retrospective control (Thompson, 1981). Although the work we reviewed by Weary and her colleagues assumes that a differential sensitivity to control-relevant social information in certain situations is in the service of control restoration, their research has not documented actual increases in perceived control. In our view, making counterfactuals about controllable relative to uncontrollable aspects of events should be more likely to enhance one's sense of retrospective control—that one "could have" controlled an event in the past (Thompson, 1981)—than making counterfactuals about uncontrollable aspects.

EVENT REPEATABILITY

Under what conditions might depression-related control beliefs be associated with differential attention to and mutation of controllable aspects of past events? A potential moderator of the relationship between control motivation and counterfactual thinking, as well as between counterfactual thinking and retrospective perceived control, is whether one believes that the event in question might happen again in the future. In a relevant study, Markman et al. (1993) found that a potentially repeatable event was more likely to engender upward counterfactual thought than a nonrepeatable event. According to these researchers, a potentially repeatable event presents one with the opportunity to improve upon the outcome in the future, and should, therefore, stimulate the generation of upward counterfactuals. On the other hand, nonrepeatable events generally should not engender as many upward counterfactuals because preparation for the future is largely irrelevant.¹

Because the potential repeatability of an event presents one with the opportunity for future improvement, it seems reasonable to expect that

1. We would not want to suggest, however, that negative and nonrepeatable events never result in the generation of upward counterfactuals. For instance, Davis, Lehman, Wortman, Silver, and Thompson (1995) found that people suffering the traumatic loss of a loved one—a nonrepeatable event—generated a great many upward counterfactuals. In our view, the strong degree of personal and emotional involvement in these events and the absence of plausible downward counterfactual alternatives overwhelmingly favors the generation of upward counterfactuals under such circumstances.

repeatable events will activate and afford individuals the opportunity to satisfy their secondary control goals. That is, one is more likely to think about how one could have controlled a repeatable event in the past because it may suggest that one might be better able to control things in the future. On the other hand, because the opportunity to exercise control over the future is largely irrelevant for nonrepeatable events, one might be less likely to think about how one could have controlled such an event in the past (cf. Silver, Boon, & Stones, 1983).

From this reasoning, then, we might expect repeatable compared to nonrepeatable negative events to result in the generation of more controllable counterfactuals, particularly for mildly and moderately depressed individuals who have chronic, heightened control concerns. However, there may be components of depression, apart from control concerns, that also would be associated with greater attention to controllable features of past nonrepeatable, negative life events. For example, it is possible that when depressed individuals are asked to think about "what could have been different" about a nonrepeatable, negative event in their lives, the guilt known to be associated with even mild and moderate levels of symptomatology could lead them to focus on controllable aspects of the event in an effort to make amends for their past actions. We, therefore, made no predictions with respect to the interaction of depression and type of counterfactual thought as a function of event repeatability. We did, however, expect that event repeatability would influence the association of chronic control loss perceptions with counterfactual thought. That is, because only repeatable events present individuals with future opportunities to re-exert control, only for such events would generalized control concerns mediate the relationship between depression and controllable counterfactual thought. We also expected that controllable counterfactual thought would, in turn, be associated with enhanced retrospective control perceptions for repeatable but not for nonrepeatable events.

METHOD

PARTICIPANTS

Participants were selected from a pool of introductory psychology students at Ohio State University who completed the Beck Depression Inventory (BDI; Beck, 1967) under the guise of seeking normative information on several recently developed psychological scales. From this initial pool, a random sample of students who scored less than 6 or above 9 on the BDI were selected for participation in the experiment

and were classified as nondepressed or depressed, respectively.² The BDI was readministered to participants at the end of the experiment, after they completed all of the experimental materials. Only those participants whose scores remained in their appropriate category were included in the final analysis. Participants who changed category (*Ns* for depressed and nondepressed categories were 32 and 20, respectively) were excluded from the sample because they may have been experiencing a transient mood state.³ The final sample consisted of 60 depressed (20 men and 40 women) participants and 61 nondepressed (30 men and 31 women) participants. The mean BDI scores at the second administration for depressed and nondepressed participants were 16.27 ($SD = 6.23$) and 2.23 ($SD = 1.48$), respectively. Importantly, the experimental manipulation of event repeatability exerted no effect on participants' final BDI scores, $F < 1$.

PROCEDURE

Participants were run in small rooms in groups of two to eight. After being told that the study concerned "thinking about life events," participants were given the Edwards and Weary (1996) Perceptions of Control Scale (PCS) to complete. This scale is a 13-item measure of generalized perceived lack of control (i.e., higher scores indicate greater feelings of lack of control), and employs six response options (1 = "strongly disagree"; 6 = "strongly agree"). The measure combines items from Mirowsky and Ross's (1991) sense of personal control measure with items used in previous studies of control perceptions and depression (Lewinsohn, Steinmetz, Larson, & Franklin, 1981; Weisz et al., 1987). Examples of items include: "I can do anything I set my mind to" and "I have little control over the bad things that happen to me." The average score for depressed individuals in the present sample was 32.68 ($SD = 6.07$), whereas the average score for nondepressed individuals was 27.10 (SD

2. The term "dysphoria" also has been suggested by some to describe undiagnosed but pre-selected samples of individuals who score within the mild or moderate levels on self-report measures of depressive symptomatology. Others, however, have raised serious questions about the use of the term dysphoria (Haaga & Solomon, 1993). In light of these concerns, and to be consistent with past usage in the personality and social research on depression as an individual difference variable (Weary, Edwards, & Jacobson, 1995), we will refer to our samples as depressed and nondepressed. This designation, however, does not signify a nosological categorization of participants.

3. Beck's (1967) depth of depression cutoffs for the BDI are 0-9 = no depression, 10-15 = mild depression, 16-23 = moderate depression, and 24+ = severe depression. It is important to note that scores on the BDI reflect the severity of depressive symptoms but do not necessarily indicate the full clinical syndrome of depression.

= 5.86). In the present sample, the scale demonstrated adequate internal consistency (Cronbach's $\alpha = .75$).

After completing the PCS, participants were given a packet of instructions and questions. Upon opening the packet, participants in the repeatable event condition were given the following instructions (see McMullen et al., 1995):

We would like you to take a moment and recall a *negative* event that has happened to you in your life. The event should have these characteristics:

1. It should be a *very negative event* (it should have made you unhappy or upset you in some way).
2. It should involve *you* (events you only heard about, for example, don't count).
3. It should have *happened recently* (within the last year or so).
4. It should be an event that could possibly *happen to you again in the future* (e.g., taking an exam).

Participants in the nonrepeatable event condition received the same instructions, with the exception that the event they recalled "...should be an event that will probably *not happen again in the future* (e.g., your only trip to a far away country)." All participants then were told to provide a written description of the event. Examples of events described in the repeatable event condition included "not studying hard enough and failing an exam" and "fighting with parents," whereas examples of events described in the nonrepeatable event condition included "missing a final year of high school football due to an injury" and "not spending enough time with a terminally ill relative."

After describing the event, participants indicated how negative they thought the event was (1 = not at all negative, 9 = extremely negative) and how much control they felt they had over what happened to them (1 = no control, 9 = a lot of control); this latter measure constituted an index of pre-counterfactual control and was embedded within a questionnaire containing measures of distress, optimism, responsibility, and satisfaction. Next, participants were told to once again "vividly imagine" the event they had described and then to list as many aspects of the event that came to mind that could have made the outcome of the event *better* (i.e., make upward counterfactuals). We chose to have participants focus only on upward counterfactuals because we felt it would be easier for them to think about how a very negative event could have been better than to think about how it could have been even worse. Following this counterfactual-listing task, participants completed a questionnaire measuring their perceptions of future confidence, preparedness for the

future, responsibility, satisfaction, and, most importantly, a rating of how much control they felt they had over what happened to them (post-counterfactual control). They were then readministered the BDI, after which they were debriefed and thanked for their participation.

CODING

Counterfactual statements derived from the listing task were coded by two independent judges; both were blind to the experimental conditions, and one was blind to the experimental hypotheses. Our coding scheme was designed to be consistent with the way attribution theorists previously have conceptualized the controllability dimension (e.g., Anderson & Deuser, 1993; Janoff-Bulman, 1979; Weiner, 1986). The general guideline for coding was that if the counterfactual focused on an aspect of the event that, in the opinion of the judge, "could have been controlled by the actor at that time," it should be categorized as controllable. On the other hand, if the judge deemed that the counterfactual focused on an aspect that "could not have been controlled by the actor at that time," it should be categorized as uncontrollable. For example, counterfactuals that focused on specific behaviors or failures to act (e.g., "If only I had studied harder...") or transient qualities of the self (e.g., "If only I had been paying more attention...") were coded as controllable, whereas counterfactuals that focused on chronic and enduring aspects of the self (e.g., "If only I wasn't so stupid...") or external forces (e.g., "If only it hadn't been raining...") were coded as uncontrollable (Niedenthal, Tangney, & Gavanski, 1994). Interjudge agreement using this coding scheme was $r = .80$. When the judges disagreed, the disagreement was resolved through discussion, and these resolutions were used in the analyses.

RESULTS

Preliminary and subsequent analyses revealed no differences on any of the key dependent variables as a function of participant gender. Thus, all reported analyses collapsed across this variable. Analyses also revealed no differences between depressed and nondepressed participants in terms of how negatively they rated the events they recalled ($M_s = 7.54$ and 7.36 , respectively), $F < 1$, or in terms of how much pre-counterfactual control they felt they had over the events ($M_s = 6.20$ and 5.72 , respectively), $F < 1$.⁴

4. Depressed individuals may have attempted to compensate for their generalized perceptions of lack of control by recalling events over which they felt they had at least some control (cf. Thompson, 1993).

TABLE 1. Number of Controllable and Uncontrollable Aspects Mutated

Depression	Controllable Counterfactual Thought	
	Controllable	Uncontrollable
Depressed	2.48 _a	1.02 _b
Nondepressed	1.64 _b	1.49 _b

Note. Values indicate mean number of counterfactuals recorded. Controllable counterfactual thought is a within-subject variable. Means without a common subscript differ at $p < .05$ (two-tailed).

Additionally, there were no differences between repeatable and nonrepeatable events in terms of how negatively participants rated the events they recalled ($M_s = 7.41$ and 7.50 , respectively), $F < 1$, or in terms of how much pre-counterfactual control they felt they had over the event ($M_s = 6.11$ and 5.81 , respectively), $F < 1$. Moreover, there were no significant interactions of depression and event repeatability on either of these measures, $F_s < 2$, $p_s > .10$. Finally, there generally were no differences between depressed and nondepressed participants in terms of the context of negative life events they chose to describe—academic, work, interpersonal, health, or other.

COUNTERFACTUALS

In order to test our predictions regarding the effects of depression on counterfactual generation, we initially performed a 2 (Depression) \times 2 (Event Type: repeatable vs. nonrepeatable) \times 2 (Counterfactual Type: controllable vs. uncontrollable) analysis of variance (ANOVA), with counterfactual type serving as a within-subjects variable. The average number of codable counterfactuals per participant was 3.31.

The ANOVA revealed a marginal effect of event type, $F(1,117) = 2.73$, $p = .10$. Participants in the repeatable event condition tended to generate somewhat more counterfactuals ($M = 3.58$) than participants in the nonrepeatable event condition ($M = 3.05$). Additionally, a significant main effect of counterfactual type was obtained, $F(1,117) = 11.74$, $p = .001$, replicating previous findings (Davis et al., 1995; Giroto et al., 1991; Markman et al., 1995; N'Gbala & Branscombe, 1995; Niedenthal et al., 1994; Roese & Olson, 1995c). Participants, overall, mutated more controllable ($M = 2.06$) than uncontrollable aspects ($M = 1.26$) of the recalled events. While the Depression \times Event Type \times Counterfactual Type interaction was not significant, $F < 1$, the predicted Depression \times Counterfactual Type interaction was obtained $F(1, 117) = 7.84$, $p = .006$. The means for this interaction are presented in Table 1. As can be seen, planned comparisons of the means revealed that depressed participants generated more controllable counterfactuals ($M = 2.48$) than did nondepressed participants ($M = 1.64$), $t(117) = 2.12$, $p < .05$. They also

mutated more controllable than uncontrollable aspects of the recalled events $t(117) = 2.59, p < .02$. There were no differences in the numbers of uncontrollable counterfactuals generated as a function of level of depression ($M_s = 1.02$ and 1.49 , for depressed and nondepressed participants, respectively), $t(117) = 1.18, p > .20$.

RELATIONSHIPS BETWEEN DEPRESSION, COUNTERFACTUAL THINKING, AND PERCEIVED CONTROL

Earlier, we predicted that generalized control concerns would mediate the relationship between depression and controllable counterfactual thought for repeatable, but not for nonrepeatable events. Consequently, we performed separate multiple regression analyses on the repeatable and nonrepeatable subsamples. For these analyses, we decided that it was important to focus on the number of controllable aspects mutated *relative* to the number of uncontrollable aspects mutated (controllable counterfactual thought index—CCT). We reasoned that while mutating controllable aspects should enhance control, mutating uncontrollable aspects should, if anything, *decrease* perceived control, as the latter is a particularly undesirable goal for depressed individuals. A difference score, therefore, was computed by subtracting the number of uncontrollable aspect mutations from the number of controllable aspect mutations coded for each judge. The difference scores from both judges were then averaged for each participant, and this average difference score constituted an index of participants' relative tendency to mutate controllable over uncontrollable aspects. Interjudge agreement for these difference scores was $r = .74$.

According to our a priori arguments, generalized control perceptions (higher scores on the PCS indicating greater lack of perceived control) should statistically account for the relationship between level of depression (dummy coded as "0" = nondepressed, "1" = depressed) and controllable counterfactual thought (CCT) only in the repeatable event condition. Additionally, we posited that specific feelings of control over both repeatable and nonrepeatable events (i.e., greater feelings of pre-counterfactual control) would predict CCT; greater feelings of control over an event should make controllable more than uncontrollable aspects of it available for mutation (Kahneman & Miller, 1986; Markman et al., 1995). In turn, mutating more controllable than uncontrollable aspects should be associated with increases in retrospective feelings of control over the event, but only in the repeatable event condition; controllable counterfactual thought should not enhance control for nonre-

TABLE 2. Zero-order Correlations Between the Study Variables

Variables	Depression	PCS	Pre-cf control	CCT	Post-cf control
Repeatable event condition					
Depression	1.00	0.43**	0.17	0.25*	0.24
PCS	0.43**	1.00	0.06	0.37**	0.14
Pre-cf control	0.17	0.06	1.00	0.28*	0.84**
CCT	0.25*	0.37**	0.28*	1.00	0.41**
Post-cf control	0.24	0.14	0.84**	0.41**	1.00
Nonrepeatable event condition					
Depression	1.00	0.44**	0.00	0.25*	-0.03
PCS	0.44**	1.00	0.24	0.08	0.13
Pre-cf control	0.00	0.24	1.00	0.15	0.83**
CCT	0.25*	0.08	0.15	1.00	0.20
Post-cf control	-0.03	0.13	0.83**	0.20	1.00

Note. PCS = Perceptions of Control Scale. CCT = Controllable Counterfactual Thought.

* $p < .05$. ** $p < .01$.

peatable events because the opportunity for future improvement is largely irrelevant.

In order to examine the four mediational hypotheses, we employed the three-step procedure suggested by Baron and Kenny (1986) for testing mediation. These authors suggest that evidence of mediation requires three patterns of relationships: (a) the predictor and the mediator should be related; (b) the predictor and mediator should be independently related to the criterion; and (c) the effects of the predictor on the criterion should become nonsignificant when the effects of the mediator are controlled. The zero-order correlations for all the variables in the repeatable and nonrepeatable event conditions appear in Table 2.

Repeatable Event Condition. We first examined the notion that general control loss perceptions would mediate the relationship between depression and controllable counterfactual thought. An initial regression analysis indicated that depression was significantly related to higher scores on the PCS, $\beta = .43$, $t(58) = 3.60$, $p < .001$. Next, an analysis involving a regression of depression on CCT, found that depressed compared to nondepressed individuals mutated relatively more controllable than uncontrollable aspects of the events, $\beta = .25$, $t(58) = 1.96$, $p = .05$. The third step involved a simultaneous regression of depression and PCS scores on CCT. Importantly, and as predicted, PCS scores significantly predicted CCT, $\beta = .33$, $t(58) = 2.41$, $p = .02$, whereas the

TABLE 3. Summaries of Regression Results for Predicting CCT and Post-counterfactual Control: Repeatable Event Condition

Variable	β	R^2	F
Predicting CCT			
Depression	.25*	.06	$F(1, 58) = 3.84^*$
PCS	.33*	.15	$F(2, 57) = 4.97^{**}$
Pre-cf control	.25*	.06 ^a	$F(1, 58) = 4.39^{*b}$
Total Regression		.21	$F(3, 56) = 4.98^{**}$
Predicting Post-Counterfactual Control			
Pre-cf control	.84**	.71	$F(1, 58) = 143.20^{**}$
CCT	.19*	.03 ^a	$F(1, 58) = 7.11^{**b}$
Total Regression		.74	$F(2, 57) = 82.70^{**}$

Note. PCS = Perceptions of Control Scale. CCT = Controllable Counterfactual Thought.

* $p < .05$, ** $p < .01$.

^a R^2 change.

^bF change.

effect of depression on CCT became nonsignificant, $\beta = .11$, $t < 1$. These analyses which are summarized in Table 3, then, offer support for our mediational arguments.

Additionally, pre-counterfactual control was added to the simultaneous regression of depression and PCS scores predicting CCT. As expected, greater pre-counterfactual control predicted a greater relative tendency to mutate controllable aspects, $\beta = .25$, $t(58) = 2.10$, $p = .04$. Moreover, as shown in Table 3, the addition of pre-counterfactual control to the equation resulted in a significant increment in R-square, $F(1, 58) = 4.39$, $p < .04$ (R^2 Increment = .06).

The second major hypothesis was that mutating more controllable than uncontrollable aspects should be associated with enhanced retrospective control perceptions in the repeatable event condition. To test this hypothesis, pre-counterfactual control and CCT were entered into a hierarchical multiple regression predicting CCT; the results of this analysis are depicted in the lower panel of Table 3. In the first step, greater feelings of pre-counterfactual control significantly predicted greater feelings of post-counterfactual control, $\beta = .84$, $t(58) = 11.97$, $p < .0001$. In the next step, CCT was added to the regression predicting post-counterfactual control. As expected, mutating more controllable than uncontrollable aspects was related to enhanced feelings of post-counterfactual control over repeatable events, $\beta = .19$, $t(58) = 2.67$, $p = .01$. Moreover, as reported in Table 3, the addition of CCT to the equation predicting post-counterfactual control resulted in a signifi-

cant increment in R-square, $F(1, 58) = 7.11, p = .01$ (R^2 Increment = .03). A path diagram summarizing the results for the repeatable event condition is depicted in Figure 1.⁵

Nonrepeatable Event Condition. Because the opportunity to satisfy one's control motivation should be lowered when thinking about nonrepeatable events, we predicted that generalized perceptions of control loss would not mediate any relationship between depression and CCT for the nonrepeatable event subsample. An initial analysis regressing depression on CCT was significant. $\beta = .26, t(59) = 2.01, p = .05$. Unlike the

Repeatable Event Condition (N=60)

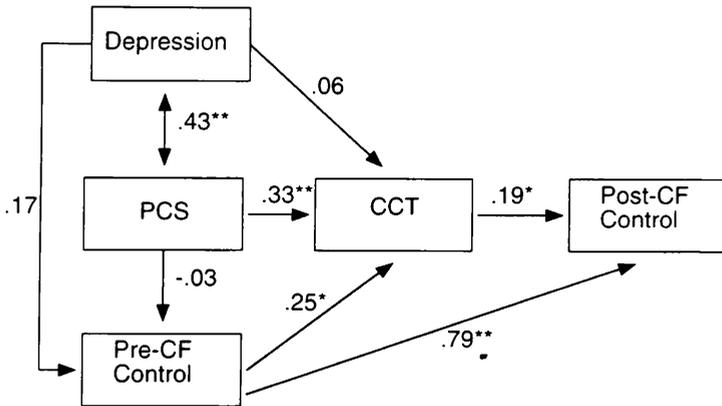


FIGURE 1. Path analysis for the repeatable event condition. Path coefficients are standardized regression weights. PCS = Perceptions of Control Scale. CCT = Controllable Counterfactual Thought.

* $p < .05$, ** $p < .01$.

5. The results obtained for the repeatable event condition do not differ when subject gender is included in the statistical models. When gender is added to the simultaneous regression of depression, PCS scores, and pre-counterfactual control predicting CCT, the analysis remains significant, $F(4, 55) = 4.10, p = .006$. PCS scores and pre-counterfactual control continue to significantly predict CCT, $\beta = .34, t(58) = 2.58, p = .01$, and $\beta = .25, t(58) = 2.08, p = .04$, respectively, whereas the relationship between depression and CCT remains nonsignificant, $\beta = .06, t < 1$. Gender also does not significantly predict CCT, $\beta = -.10, t < 1$. When gender is added to the simultaneous regression of pre-counterfactual control and CCT on post-counterfactual control, the analysis remains significant, $F(3, 56) = 56.86, p < .0001$. Pre-counterfactual control and CCT continue to significantly predict post-counterfactual control, $\beta = .80, t(58) = 11.47, p < .0001$, and $\beta = .18, t(58) = 2.53, p = .01$, respectively. Gender does not significantly predict post-counterfactual control, $\beta = -.09, t(58) = -1.31, p = .20$.

TABLE 4. Summaries of Regression Results for Predicting CCT and Post-counterfactual Control: Nonrepeatable Event Condition

Variable	β	R^2	F
Predicting CCT			
Depression	.25*	.06	$F(1, 59) = 4.04^*$
PCS	-.03	.06	$F(2, 58) = 1.84$
Pre-cf control	.17	.03 ^a	$F(1, 59) = 1.87^b$
Total Regression		.09	$F(3, 57) = 2.06$
Predicting Post-counterfactual Control			
Pre-cf control	.83**	.69	$F(1, 59) = 129.36^{**}$
CCT	.08	.01 ^a	$F(1, 59) = 1.29^b$
Total Regression		.70	$F(2, 58) = 65.64^{**}$

Note. PCS = Perceptions of Control Scale. CCT = Controllable Counterfactual Thought.

* $p < .05$, ** $p < .01$.

^a R^2 change.

^bF change.

repeatable event condition, however, when PCS scores were regressed on CCT, higher PCS scores did not predict a tendency to mutate more controllable than uncontrollable aspects of the recalled event, $\beta = -.03$, $t < 1$ (see the upper panel of Table 4). Thus, generalized control loss perceptions could not have mediated the relationship between depression and CCT in the nonrepeatable event condition.

Because nonrepeatable events do not present an opportunity to satisfy one's control motivation, we also predicted that participants in the nonrepeatable event condition would not gain perceived control from mutating more controllable than uncontrollable aspects. An initial analysis regressing pre-counterfactual control on post-counterfactual control was significant, $\beta = .69$, $t(59) = 11.37$, $p < .0001$. As expected, however, when CCT was added to the regression predicting post-counterfactual control, CCT did not significantly predict post-counterfactual control, $\beta = .08$, $t(59) = 1.11$, $p > .20$ (see the lower panel of Table 4). Thus, a greater tendency to mutate controllable over uncontrollable aspects was not associated with significant increases in retrospective control over nonrepeatable events.⁶

6. The results obtained for the nonrepeatable event condition do not differ when gender is included in the statistical models. When gender is added to the simultaneous regression of depression and PCS scores predicting CCT, the relationship between depression and CCT remains significant, $\beta = .27$, $t(59) = 2.03$, $p = .05$, whereas the relationship between PCS scores and CCT remains nonsignificant, $\beta = -.10$, $t < 1$. Gender also does not predict CCT, $\beta = .11$, $t < 1$. When gender is added to the simultaneous regression of pre-counterfactual control and CCT predicting post-counterfactual control, the relationship between CCT and post-counterfactual control remains nonsignificant, $\beta = .09$, $t(59) = 1.15$, $p = .20$. Gender also does not significantly predict post-counterfactual control, $\beta = -.02$, $t < 1$.

Non-Repeatable Event Condition (N=61)

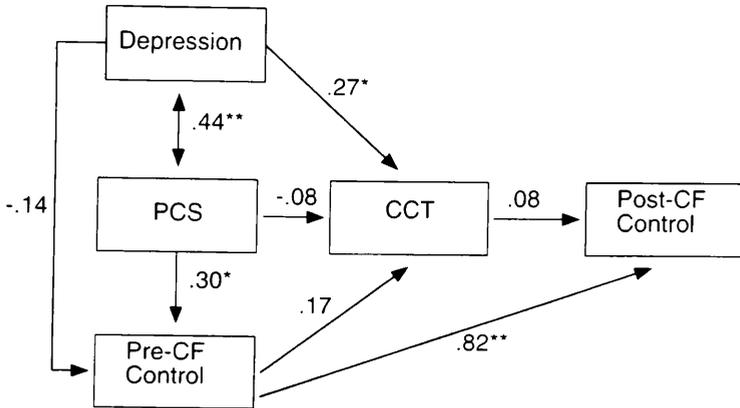


FIGURE 2. Path analysis for the nonrepeatable event condition. Path coefficients are standardized regression weights. PCS = Perceptions of Control Scale. CCT = Controllable Counterfactual Thought.

* $p < .05$, ** $p < .01$.

Finally, we should note the unexpected positive relationship between high PCS scores and pre-counterfactual control (see Figure 2— $\beta = .30$, $p < .05$). While admittedly speculative, it may be that participants suffering from greater perceptions of lack of control attempted to compensate for these feelings by recalling events over which they felt they had at least some control. These participants may not have attempted to compensate by mutating relatively more controllable aspects, however, because the motivation to control such events in the future was irrelevant in this condition.

DISCUSSION

The results of this study suggest that there may be differences in the way moderately depressed and nondepressed individuals generate counterfactual alternatives in response to negative life events. Depressed participants were more likely than nondepressed participants to generate counterfactuals that focused on more of the controllable than uncontrollable aspects of such negative events. Moreover, mediational analyses suggested that this greater relative tendency was driven by general perceptions of control loss in the case of potentially repeatable events. The results of this study also indicated that mutating more controllable

than uncontrollable aspects was associated with increases in perceived control over repeatable events. In our view, these findings are suggestive of a *compensatory mechanism* (cf. Thompson, 1993) whereby depressed individuals attempt to compensate for their *general* perceptions of control loss by enhancing their perceptions of retrospective control over *specific* events through counterfactual thought.

There also, however, was a significant and positive relationship between depression and controllable counterfactual thought in the nonrepeatable event condition. Thus, there appear to be other aspects of depression above and beyond control concerns that can result in the mutation of more controllable than uncontrollable aspects. Further research will be needed to determine exactly what these may be, although one possibility mentioned earlier are the feelings of guilt which often are associated with depression. According to a number of researchers (e.g., Niedenthal et al., 1994; Weiner, 1986; Weiner, Graham, & Chandler, 1982; Wicker, Payne, & Morgan, 1983), feelings of guilt over negative occurrences result from attributions to personally controllable causes and self-responsibility. In our estimation, although nonrepeatable events may not present the opportunity to satisfy one's control motivation, they still may lead to ascriptions of self-responsibility and personal controllability that engender the guilt so often experienced by depressed individuals. Driven by these feelings of guilt, depressed individuals may then focus on controllable relative to uncontrollable aspects in an effort to make amends for their past actions. As our results suggest, however, such thinking may not enhance perceived control when an event will not be repeated.

To the best of our knowledge, the current study is the first to document individual differences in counterfactual thinking as a function of depression. In a related series of studies, Roese and Olson (1993) focused on individual differences in counterfactual thinking and self-esteem, a component of depression. In their work, participants with either high (HSEs) or low (LSEs) self-esteem were asked to imagine themselves performing behaviors with another person that resulted in either a successful outcome or a failure. The counterfactuals participants generated about these outcomes were then coded as focusing on either actions taken by the self or actions taken by the other. Relevant for the present work, the results indicated that following failure, LSEs were more likely than HSEs to mutate their *own* actions. Although Roese and Olson (1993) were concerned with self- vs. other-referent counterfactuals as opposed to controllability per se, their finding that LSEs were more likely to mutate their own (controllable) actions than the actions of another (uncontrollable) is certainly consistent with our results. Kasimatis and Wells (1995) replicated this effect and, additionally, report findings indicating a tendency

for LSEs to engage in upward counterfactual thinking and HSEs to engage in downward counterfactual thinking. Interestingly, Kasimatis and Wells did not find a tendency for individuals high in need for control (Burger & Cooper, 1979) to engage in more upward counterfactual thinking. In our view (cf. Weary & Edwards, 1996), this null finding suggests that upward counterfactual thought—especially controllable upward counterfactual thought—may be more linked to a desire for secondary control (i.e., understanding and interpretive control; Rothbaum, Weisz, & Snyder, 1982) than to a proactive desire to have or engage in primary control.

The finding that depressed individuals mutated more controllable than uncontrollable aspects may seem surprising in light of theoretical suggestions and empirical evidence indicating a tendency for depressed individuals to engage in characterological self-blame, a form of self-blame that implicates unmodifiable (and thus uncontrollable) aspects of the self as important causes of negative events (Alloy et al., 1990; Anderson et al., 1994; Janoff-Bulman, 1979). We believe this seeming contradiction can be addressed, however, by the possibility that direct causal questioning focuses the individual on a different level of analysis than asking “what might have been different.” For example, when moderately depressed individuals make a characterological attribution, they are emphasizing that it is something about themselves that they could not or did not control, not that other people could not have controlled it. Thus, they may readily agree with both the statement “It was my own stupidity” (a characterological attribution) and the statement “If only I had done X, the event would have been avoided” (a controllable counterfactual); causal questioning focuses the individual on the former type of answer, whereas counterfactual questioning focuses the individual on the latter. The depressed individual would not see these two answers as contradictory. Moreover, such a style of thinking (e.g., “It’s my fault,” “I should have been able to prevent this”) may actually be a major source of the feelings of self-blame, guilt, and negative affect that characterize the depressed individual (Davis et al., 1995; Sherman & McConnell, 1995).⁷

WHY DO DEPRESSIVES STILL SUFFER FROM CONTROL LOSS PERCEPTIONS?

The results of the present study, however, raise an interesting question: If mildly depressed individuals restore perceived control over repeatable negative life events by mutating more controllable than uncontrollable aspects, then why do they suffer from control loss perceptions relative to nondepressed individuals? Moreover, if counterfactual think-

7. We thank an anonymous reviewer for suggesting this extremely insightful possibility.

ing focuses individuals on alternative solutions to problematic situations, then why do depressed individuals suffer from marked deficits in problem-solving ability relative to nondepressed individuals (e.g., Conway & Giannopolous, 1993; Marx, Williams, & Claridge, 1992)?

Although we can only speculate at this point, we suggest several possibilities. The first possibility is that depressed individuals do not usually engage in spontaneous counterfactual thinking. After all, participants in the present study were *instructed* to make counterfactuals about the events they recalled. However, in light of the growing body of evidence suggesting that nondepressed individuals *do* engage in spontaneous counterfactual thinking in response to negative life events (e.g., Markman et al., 1993; Roese & Olson, 1995c; Sanna & Turley, 1996), we have no reason to believe that counterfactual thinking is an unnatural process for depressives to engage in. Indeed, the simple instruction to "think about how the event could have been different" appeared to engage depressed and nondepressed individuals in equivalent amounts of counterfactual thought. Nevertheless, we certainly cannot rule out the possibility that depressives often initially react to a negative outcome by ruminating on their depressed mood, as well as the causes and consequences of that mood (Nolen-Hoeksema, 1993; Pyszczynski & Greenberg, 1987; Wood, Saltzberg, Neale, Stone, & Rachmiel, 1990).

In our view, a stronger possibility is that although depressed individuals may *feel* like they have control over an event, they may experience "breakdowns" in the implementation of behavioral strategies designed to deal with a recurrence of the event. As recent reviews by Gollwitzer (1990, 1993) suggest, depressed affect and ruminative or self-focused thought can sap the cognitive resources needed for the effective implementation of goal intentions. A similar point has been made more recently by Lyubomirsky and Nolen-Hoeksema (1995). Also, Beck, Rush, Shaw, and Emery (1979) have suggested that depressed individuals' greater requirement for certainty of the correctness of a decision before committing to it contributes to their failure to make the appropriate response (Coyne, Aldwin, & Lazarus, 1981; Miller & Lewis, 1977). Thus, although depressed individuals may be able to develop constructive thoughts and strategies, their difficulties in converting those thoughts into action may leave them feeling as frustrated and control-deprived as ever. Clearly, future research would benefit from an analysis of the action phases (Heckhausen, 1991) most influenced by depressives' counterfactual thought. It may well be that the restoration of secondary control engendered by depressives' counterfactual thought influences primarily the predecisional and postactional phases, but has relatively little impact on the actional phase.

Before concluding, we should mention a potential criticism of our

study, one having to do with the use of pretest and posttest ratings of control. It seems reasonable to suggest that many of our participants thought they were supposed to produce a different answer on the post-counterfactual measure of control after having responded to the pre-counterfactual measure. Moreover, one could plausibly argue that the participants understood that this new answer should reflect their responses on the counterfactual-listing task. However, for two major reasons, we believe this alternative explanation for our control perception results is not very plausible. First, both the pretest and posttest control ratings were embedded within a host of other items, thereby decreasing the possibility that participants were especially sensitized by the pretest measure. Secondly, we find it difficult to imagine that participants could have anticipated the complex effects we uncovered—that mutating more controllable than uncontrollable aspects should enhance ratings of pre- to post-counterfactual control for repeatable but not for nonrepeatable events. Nevertheless, we admit that these issues cannot be completely ruled out at this time.

One caveat we should mention is that the results of the current studies may not generalize to a clinically depressed population. In fact, the results of Marsh and Weary (1989) suggest that individuals who are severely depressed would have low motivation to mutate more controllable than uncontrollable aspects. At extreme levels of depression, individuals' general perceptions of control may be so low that they would be unlikely to believe that there is anything they can do to control their outcomes. Such extreme feelings of uncontrollability could be expected to result in a helplessness pattern of behavior (i.e., passivity and withdrawal) rather than the active attempts to regain control demonstrated by the mildly depressed participants in the present studies.

Additionally, we should note that our results may well not be specific to individuals experiencing mild and moderate levels of depression. Indeed, the specific component of depression in which we were interested, control loss perceptions, also is known to be a feature of anxiety disorders (Alloy, et al., 1990; Garber, Miller, & Abramson, 1980; Marsh & Weary, 1994). Just as we have shown that the relationship between level of depressive symptomatology and type of counterfactual thought is mediated by control loss perceptions, we would expect future research to demonstrate that they also mediate the relationship between the level of anxiety and type of counterfactual thought.

In conclusion, the present study supports the notion that depressed compared to nondepressed persons are more likely to mutate controllable than uncontrollable aspects of certain life events in an effort to restore generalized perceptions of control loss. Moreover, it appears that mutating more controllable than uncontrollable aspects of negative life

events is associated with enhanced feelings of retrospective control over these events. In general, these results represent an initial step toward describing the manner in which depressed persons engage in counterfactual thinking about negative life events, as well as the manner in which perceived control can be attained through such counterfactual thought. We believe that a further integration of research on depressive symptomatology, counterfactual thinking and action control will be extremely beneficial for the advancement of theory in all three domains.

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